

USPS EXPRESS MAIL  
EV 338 198 354 US  
AUGUST 19 2003

Docket # 4564  
INV.: Kenzou Kassai  
Ichiro Ohnishi

TITLE OF THE INVENTION

Foldable Baby Carriage

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a folding baby carriage which can be folded from an open state to a closed state (folded state) and more particularly, to a folding baby carriage in which a lock of the open state is not accidentally released.

Description of the Background Art

Fig. 1 illustrates a folding baby carriage disclosed in Japanese Patent Laying-Open Gazette No. 10-35507. The illustrated baby carriage comprises a reversing member 3 having one end rotatably connected to a rear leg 1 and the other end rotatably connected to a lower end of a U-shaped pushrod 2, an open-state locking member 4 which is supported on a lower region of the pushrod 2 so as to be movable upward and downward and locks an open state of the baby carriage by engaging with the reversing member 3, a wire 5 provided in the U-shaped pushrod 2 and having a lower end connected to a pair of open-state locking members 4, and an operating member 6 provided at the center of the U-shaped pushrod 2 so as to be able to pull up the wire 5.

When the wire 5 is pulled up by operating the operating member 6 and accordingly the open-state locking member 4 is moved upward, the open-state locking member 4 is disengaged from the reversing member 3 to enable transition to a folding operation of the baby carriage.

A person who moves the baby carriage always puts a hand on the pushrod. Therefore, contrary to an intention of the person who moves the baby carriage, the operating member could be accidentally touched and operated by the hand. In this case, the lock of the open state of the baby carriage is released and the baby carriage can be changed to the folding operation. If a front wheel crashes against an obstacle in this state while the baby carriage is moved, the folding operation could start while a baby is seated.

#### SUMMARY OF THE INVENTION

It is an object of the present invention to provide a baby carriage in which a lock of an open state of the baby carriage is not released even when a person who moves the baby carriage accidentally operates an operating member.

A folding baby carriage according to the present invention comprises an open-state locking member which locks an open state of a baby carriage by engaging with a part of a carriage body, an operating member which releases a lock in the open state of the baby carriage by moving the open-state locking member, and a stopper provided so as to be operationally separate from the operating means. The stopper is provided so as to be movable between a first position in which it is directly in contact with the open-state locking member to prohibit the movement of the open-state locking member and a second position in which it is separate from the open-state locking member to allow the movement of the open-state locking member.

According to the above constitution of the present invention, since the open-state locking member cannot be moved unless the stopper which is

operationally separated from the operating member is moved, the lock of the open state is not released even when the operating member is accidentally operated. As a result, there can be provided a folding baby carriage which is very superior in safety.

Preferably, the folding baby carriage comprises forcing means for forcing the stopper to be brought to the fist position. Thus, in its normal used state, the stopper can be stably maintained at the first position in which the movement of the open-state locking member is prohibited by the forcing means, which is preferable in view of safety. In addition, when the baby carriage is changed from a closed state (folded state) to the open state, since the stopper automatically returns to the first position, it is prevented to forget to lock the stopper.

Instead of providing the forcing means, the stopper may be brought to the first position by its own weight when the baby carriage is in the open state. In this case, the structure of the stopper can be very simple.

According to a preferred embodiment of the present invention, the folding baby carriage comprises a handrail supporting member rotatably connected to a rear end of a handrail member, a rear leg having a rear wheel and a reversing member. The reversing member has one end rotatably connected to the rear leg and the other end rotatably connected to the handrail supporting member and performs a reversing operation in accordance with transition from the open state to the closed state of the baby carriage. The open-state locking member is provided so as to be movable upward and downward along the handrail supporting member and prohibits movement of the reversing member by engaging with the reversing member at the lower

position. The stopper is supported by the handrail supporting member so as to be movable upward and downward and prohibits movement of the open-state locking member by abutting on the open-state locking member at the lower position. Here, preferably, an upper end of the stopper is rotatably connected to the handrail supporting member.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side view showing a conventional baby carriage;

Fig. 2 is a side view showing an embodiment of the present invention;

Fig. 3 is a side view showing a closed state (folded state) according to the embodiment of the present invention;

Fig. 4 is a view showing an enlarged substantial part according to the embodiment shown in Fig. 2; and

Fig. 5 is a view showing a state in which a stopper was turned from a state shown in Fig. 4.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figs. 2 to 5 illustrate an embodiment of the present invention. Fig. 2 shows an open state of a folding baby carriage and Fig. 3 shows a closed state (folded state) of the folding baby carriage. An illustrated basic frame structure is substantially the same as that shown in Fig. 1.

The illustrated folding baby carriage comprises a rear leg 1 having a rear wheel, a U-shaped pushrod 2, a reversing member 3 having one end rotatably connected to the rear leg 1 and the other end rotatably connected to a lower end of the pushrod 2, and a handrail 7 having a rear end rotatably connected to the pushrod 2.

An open-state locking member 4 which is supported on a lower region

of the pushrod 2 so as to be movable upward and downward is operably connected to a wire 5 extending in the pushrod 2. An operating member 6 for pulling up the wire 5 is provided at a central portion of the U-shaped pushrod 2.

According to the open state of the baby carriage shown in Fig. 2, the open-state locking member 4 engages with the reversing member 3 and locks the open state of the baby carriage. The illustrated embodiment is characterized in that a stopper 10 for prohibiting an upward movement of the open-state locking member 4 is provided. In a case where the baby carriage is changed from the open state to a closed state, the stopper 10 is turned by hand and the operating member 6 is operated in this state as shown in Fig. 5. Then, the wire 5 is pulled up and the open-state locking member 4 is moved upward to be disengaged from the reversing member 3. Thus, the baby carriage can be changed to the closed state.

Referring to Fig. 4, a structure regarding to the stopper 10 will be described in detail.

The stopper 10 is rotatably connected to a rear portion of the handrail member 7 through an axis 11. An abutment stop 13 for prohibiting the stopper 10 from turning counterclockwise in the drawing in contact with the stopper 10 is provided at the handrail 7. The stopper 10 is disposed at a first position shown in Fig. 4 where it abuts on the abutment stop 13 by its own weight in the open state of the baby carriage. The stopper 10 is operationally separated from the operating member 6.

A plate 12 is fixed to a forward wall of the open state locking member 4. When the stopper 10 is at the first position shown in Fig. 4, the lower

end of the stopper 10 is just above the plate 12. Therefore, even when a person who moves the baby carriage operates the operating member 6 by accident and the wire 5 is pulled up, since the upward movement of the open-state locking member 4 is prevented by the stopper 10, the open-state locking member 4 is not disengaged from the reversing member 3. Therefore, it is very superior in safety.

As described above, when the baby carriage is changed to the closed state, the stopper 10 is manually turned clockwise in the drawing so as to be separated from an upper portion of the plate 12 as shown in Fig. 5. In this state, the operating member 6 is operated to move the open-state locking member 4 upward so that the open-state locking member 4 is disengaged from the reversing member 3. In this state also, the operating member 6 is operated to pull up the open-state locking member 4 to fold the baby carriage. In the closed state of the baby carriage shown in Fig. 3, the stopper is positioned along the rear leg 1.

When the baby carriage is changed from the closed state to the open state, since the stopper 10 is brought to the first position shown in Fig. 2 by its own weight, it is prevented to forget to lock the stopper 10.

According to the illustrated embodiment of the present invention, when the baby carriage is changed from the open state to the closed state, it is necessary to operate the stopper 10 first and then, continuously operate the operating member 6. Since the stopper 10 is operationally separated from the operating member 6 completely and their positions are also separated, the above two operations cannot be performed unconsciously. Therefore, there is no risk in which the open state is unlocked

accidentally.

The described and illustrated embodiment is only an example of the present invention. Therefore, various kinds of modifications and changes can be provided within the same or equable range of the present invention. Some of them are illustratively desctried in the following.

(1) Although the stopper is returned to the position just above the plate of the open-state locking member by its own weight in the illustrated embodiment, it is not always turned and returned by its own weight. For example, the stopper may be slidably moved instead of being rotatably moved. In addition, as force to return the stopper to the position just above the plate (the first position), forcing means such as a spring having elastic force may be used instead of its own weight. Alternatively, the stopper may be manually moved between the first position and a second position (position in which movement of the open-state locking member is allowed apart from the open-state locking member).

(2) Although the open-state locking member has a plate which engages with the stopper in the illustrate embodiment, the present invention is not limited to the plate configuration. In effect, it is all right as long as the open-state locking member has a part which can engage with the stopper and the part may have any configuration.

(3) According to the illustrated embodiment of the present invention, the lower end of the pushrod is connected to the rear leg through the reserving member and the rear end of the handrail member is supported by the pushrod. As its modification, for example, if the baby carriage is such that the pushrod can be switched between pushing from the back and

pushing from the front, a handrail supporting member may be provided in addition to the pushrod. The handrail supporting member has an upper end which is rotatably connected to the rear end of the handrail member and a lower end which is rotatably connected to the reversing member. The open-state locking member is provided so as to be movable upward and downward along the handrail supporting member and engages with the reversing member to prohibit the movement of the reversing member at a lower position.

(4) Although the open-state locking member is moved by the operating member through the wire in the illustrated embodiment, the wire may not be used as a method of moving the open-state locking member.

(5) According to the illustrated embodiment, the open-state locking member locks the open state of the baby carriage by engaging with the reversing member. As its modification, the folding baby carriage may not comprise the illustrated reversing member. In this case, the open-state locking member locks the open state of the baby carriage by engaging with a part of a body of the baby carriage.